



Robert Greene Sterne Jorge A. Goldstein David K.S. Cornwell Tracy-Gene G. Durkin Michael B. Ray Robert E. Sokohl Fric K. Steffe Steven R. Ludwig Linda E. Horner Donald J. Featherstone Timothy J. Shea, Jr Michael V. Messinger Judith U. Kim

Patrick E. Garrett Jeffrey T. Helvey Heidi L. Kraus Eldora L. Ellison Thomas C. Fiala Peter A. Jackman Jeffrey S. Weaver Brian J. Del Buono Edward W. Yee Vincent L. Capuano Virgil Lee Beaston Theodore A. Wood Joseph S. Ostroff Rae Lynn P. Guest Daniel A. Klein

May 24, 2006

LuAnne M. DeSantis Ann E. Summerfield Helene C. Carlson Cynthia M. Bouchez Timothy A. Doyle Gaby L. Longsworth Lori A. Gordon Laura A. Vogel Bryan S. Wade Bashir M.S. Ali Shannon A. Carroll Matthew E. Kelley Michelle K. Holoubek Marsha A. Rose

Jason D. Eisenberg Michael D. Specht Tracy L. Muller Jon E. Wright Young Tang Christopher J. Walsh W Riake Coblectz\* James J. Pohl\* John T. Haran\* Mark W. Rygiel Kevin W. McCabe

Registered Patent Agents • Matthew J. Dowd Katrina Yujian Pei Quach Rryan L. Skelton Robert A. Schwartzman Victoria S. Rutherford Simon J. Elliott Julie A. Heider Mita Mukherjee

Scott M. Woodhouse Liliana Di Nola-Baror Peter A. Socarras Jeffrey K. Mills Danielle L. Letting .ori Brandes Steven C. Oppenheimer

Of Counsel Edward J. Kessler Kenneth C. Bass III Marvin C. Guthrie

\*Admitted only in Maryland \*Admitted only in Virginia Practice Limited to Federal Agencies

WRITER'S DIRECT NUMBER: (202) 772-8587 **INTERNET ADDRESS:** PGARRETT@SKGF.COM

Mail Stop Amendment

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Re:

U.S. Utility Patent Application

Application No. 10/719,058; Filed: November 24, 2003

Methods, Systems, and Computer Program Products for Parallel

**Correlation and Applications Thereof** 

Inventors: Our Ref:

RAWLINS et al. 1744.1380000

Sir:

Transmitted herewith for appropriate action are the following documents:

- 1. Fourth Supplemental Information Disclosure Statement;
- 2. Four (4) sheets of Form PTO-1449 listing twenty-six (26) documents; and
- 3. One (1) return postcard.

It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

Sterne, Kessler, Goldstein & Fox p.l.l.c.

Patrick E. Garrett Attorney for Applicants

Registration No. 39,987

PEG/mlb Enclosures 535443\_1.DOC

Sterne, Kessler, Goldstein & Fox RLLC.: 1100 New York Avenue, NW: Washington, DC 20005: 202.371.2600 f 202.371.2540: www.skgf.com

## THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

RAWLINS et al.

Appl. No.: 10/719,058

Filed: November 24, 2003

For:

Methods, Systems, and Computer Program Products for Parallel Correlation and Applications

Thereof

Confirmation No.: 9124

Art Unit: 2193

Examiner: Chaki, Kakali

Atty. Docket: 1744.1380000



## Fourth Supplemental Information Disclosure Statement

Mail Stop Amendment

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98. The numbering on this Fourth Supplemental Information Disclosure Statement is a continuation of the numbering in Applicants' Third Supplemental Information Disclosure Statement filed on March 24, 2006 in connection with the above-captioned application.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

RAWLINS et al. Appl. No. 10/719,058

Atty. Docket: 1744.1380000

Applicants provide the following comments regarding the documents:

Documents AC72, AH73, and AI73 are co-owned patents which are directed to related subject matter.

Documents AD72 and AE72 were cited in an Office Action in related U.S. Patent Application No. 11/173,021, filed July 5, 2005, entitled "Method and Circuit for Down-Converting a Signal," directed to related subject matter. Also cited in said Office Action was U.S. Patent No. 6,393,070, which has already been cited in the present application.

Documents AF72-AI72 and AA73-AG73 were cited in an Office Action in related U.S. Patent Application No. 10/305,299, filed November 27, 2002, entitled "Method and Apparatus for Improving Dynamic Range In a Communication System," directed to related subject matter. Also cited in said Office Action were U.S. Patent Nos. 5,339,459 and 5,517,688, which have already been cited in the present application.

Documents AA74 and AB74 were cited in an Office Action in related U.S. Patent Application No. 10/197,255, filed July 18, 2002, entitled "Networking Methods and Systems," directed to related subject matter. Also cited in said Office Action were U.S. Patent Nos. 5,703,584; 5,887,001; 6,298,065; and 6,850,742; and U.S. Patent Publication Nos. 2002/0080728 and 2002/0163921, which have already been cited in the present application.

Documents AC74-AG74 were cited in an Office Action in related U.S. Patent Application No. 11/068,370, filed March 1, 2005, entitled "Method and System for Frequency Up-Conversion with a Variety of Transmitter Configurations," directed to related subject matter. Also cited in said Office Action were U.S. Patent Nos. 5,903,854 and 5,914,622, which have already been cited in the present application.

Atty. Docket: 1744.1380000

Document AH74 was cited in an Office Action in related U.S. Patent Application No. 09/567,977, filed May 10, 2000, entitled "Optical Down-converter Using Universal Frequency Translation Technology," directed to related subject matter. Also cited in said Office Action was Deboo, Gordon J., *Integrated Circuits and Semiconductor Devices*, 2nd Edition, McGraw Hill, Inc., pp. 41-45 (1977), which has already been cited in the present application.

Documents AI74 and AA75 are co-owned, pending U.S. patent application publications directed to related subject matter.

This statement should not be construed as a representation that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below:

- 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final

Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- □ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p).
- 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

- a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance.

  1138 OG 37, 38.
- 6. A concise explanation of the relevance of the non-English language documents appears below in accordance with 37 C.F.R. § 1.98(a)(3):
- ∑ 7. In accordance with 37 C.F.R. § 1.98(a)(2), copies of the U.S. patents and patent publications cited on the attached Form PTO-1449 are not enclosed.

| ■ 8. | Copies of the documents were cited by or submitted to the Office in an IDS that |
|------|---|
|      | complies with 37 C.F.R. § 1.98(a)-(c) in Application No, filed                  |
|      | , which is relied upon for an earlier filing date under 35 U.S.C. § 120         |
|      | Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).          |

∑ 9. It is expected that the examiner will review the prosecution and cited art in the parent application no. 09/987,193, filed November 13, 2001 (now U.S. Patent No. 7,010,559), in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed Form PTO-1449, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Patrick E. Garrett Attorney for Applicants Registration No. 39,987

Date:

1100 New York Avenue, N.W. Washington, D.C. 20005-3934 (202) 371-2600

5/24/06

533587\_1.DOC

FORM PTO-1449

**FOURTH SUPPLEMENTAL** 

ATTY. DOCKET NO. 1744.1380000

APPLICATION NO. 10/719,058

Page 1 of 4

FIRST NAMED INVENTOR Gregory S. RAWLINS

| INFO                             |                    | DISCLOSURE STATEM | AENIT                            | Gregory S. RAWLINS       |                  |           |             |  |  |  |
|----------------------------------|--------------------|-------------------|----------------------------------|--------------------------|------------------|-----------|-------------|--|--|--|
| INFORMATION DISCLOSURE STATEMENT |                    |                   | FILING DATE<br>November 24, 2003 |                          | ART UNIT<br>2193 |           |             |  |  |  |
|                                  |                    |                   | U.S. PAT                         | ENT DOCUMENTS            | 2193             |           |             |  |  |  |
| EXAMINER<br>INITIAL              | DOC.<br>REF.       | DOCUMENT NUMBER   | DATE                             | NAME                     | CLASS            | SUB-CLASS | FILING DATE |  |  |  |
| 111772                           | AA                 |                   |                                  | ****                     |                  |           |             |  |  |  |
|                                  | AB                 |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AC72               | 7,016,663 B2      | 03/2006                          | Sorrells et al.          |                  |           |             |  |  |  |
|                                  | AD72               | 3,694,754         | 09/1972                          | Baltzer                  |                  |           |             |  |  |  |
|                                  | AE72               | 4,931,716         | 06/1990                          | Jovanovic et al.         |                  |           |             |  |  |  |
|                                  | AF72               | 3,617,898         | 11/1971                          | Janning, Jr.             |                  |           |             |  |  |  |
|                                  | AG72               | 3,764,921         | 10/1973                          | Huard                    |                  |           |             |  |  |  |
|                                  | AH72               | 4,158,149         | 06/1979                          | Otofuji                  |                  |           |             |  |  |  |
|                                  | A172               | 4,380,828         | 04/1983                          | Moon                     |                  |           |             |  |  |  |
|                                  | _ 1                |                   | FOREIGN P                        | ATENT DOCUMENTS          | I                |           | J <u>.</u>  |  |  |  |
| EXAMINER<br>INITIAL              | DOC.<br>REF.       | DOCUMENT NUMBER   | DATE                             | COUNTRY                  | CLASS            | SUB-CLASS | TRANSLATION |  |  |  |
|                                  | AJ                 |                   |                                  |                          |                  |           | Yes<br>No   |  |  |  |
|                                  | AK                 |                   |                                  |                          |                  |           | Yes<br>No   |  |  |  |
|                                  | AL                 |                   |                                  |                          |                  |           | Yes<br>No   |  |  |  |
|                                  | АМ                 |                   |                                  |                          |                  |           | Yes<br>No   |  |  |  |
|                                  |                    | OTHER DOCUMENT    | S (Including                     | Author, Title, Date, Per | rtinent Pages,   | etc.)     |             |  |  |  |
| EXAMINER<br>INITIAL              | DOC. REF. CITATION |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AN                 | ·                 |                                  |                          |                  |           |             |  |  |  |
|                                  |                    |                   |                                  |                          |                  |           |             |  |  |  |
|                                  |                    |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AO                 |                   |                                  |                          |                  |           |             |  |  |  |
|                                  |                    |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AP                 |                   |                                  |                          |                  |           |             |  |  |  |
|                                  |                    |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AQ                 |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | 1                  |                   |                                  |                          |                  |           |             |  |  |  |
|                                  | AR                 |                   |                                  |                          |                  |           |             |  |  |  |
| EXAMINER                         |                    |                   |                                  |                          | DATE CO          | NSIDERED  |             |  |  |  |
|                                  |                    |                   |                                  |                          | 1                |           |             |  |  |  |

| <del></del>                      |                | <del></del>  |                 | <del></del>   | <del></del>                           |               |                   | Page 2 of 4        |
|----------------------------------|----------------|--|-----------------|---|---------------------------------------|---------------|-------------------|--------------------|
| FORM PTO-1449                    |                |  |                 | ATTY. DOCKET NO.   APPLICATION NO.   1744.1380000   10/719,058   FIRST NAMED INVENTOR |                                       |               |                   |                    |
|                                  | FOURT          | TH SUPPLEMENTAL  |                 |   |                                       |               |                   |                    |
| INFORMATION DISCLOSURE STATEMENT |                |  |                 | Gregory S. RAWLINS FILING DATE ART UNIT November 24, 2003 2193                        |                                       |               |                   |                    |
|                                  |                | ·  | U.S. PAT        | ENT DOCUM   | ENTS                                  |               |                   |                    |
| EXAMINER<br>INITIAL              | DOC.<br>REF.   | DOCUMENT NUMBER  | DATE            | NAME  |                                       | CLASS         | SUB-CLASS         | FILING DATE        |
|                                  | AA73           | 4,562,414  | 12/1985         | Linder et al.   |                                       |               |                   |                    |
|                                  | AB73           | 4,814,649  | 03/1989         | Young   |                                       |               |                   |                    |
|                                  | AC73           | 4,845,389  | 07/1989         | Pyndiah et  | al.<br>                               |               |                   |                    |
|                                  | AD73           | 5,172,019  | 12/1992         | Naylor et al  | Naylor et al.                         |               |                   |                    |
|                                  | AE73           | 5,263,198  | 11/1993         | Geddes et a   | Geddes et al.                         |               |                   |                    |
|                                  | AF73           | 5,551,076  | 08/1996         | Bonn  | Bonn                                  |               |                   |                    |
|                                  | AG73           | 5,633,610  | 05/1997         | Maekawa e   | t al.                                 |               |                   |                    |
|                                  | AH73           | 7,027,786 B1   | 04/2006         | Smith et al.  | · · · · · · · · · · · · · · · · · · · |               |                   |                    |
|                                  | AI73           | 7,039,372 B1   | 05/2006         | Sorrells et a   |                                       |               |                   |                    |
|                                  |                |  | FOREIGN F       | ATENT DOC   | JMENTS                                | <del></del>   | ,                 |                    |
| EXAMINER<br>INITIAL              | DOC.<br>REF.   | DOCUMENT NUMBER  | DATE            | COUNTR  | ?Y                                    | CLASS         | SUB-CLASS         | TRANSLATION<br>Yes |
|                                  | AJ             |  |                 |   |                                       |               |                   | No<br>Yes          |
|                                  | AK             |  |                 |   |                                       |               |                   | No                 |
|                                  | AL             |  |                 |   |                                       |               |                   | Yes<br>No          |
|                                  | АМ             |  |                 |   |                                       |               |                   | Yes<br>No          |
|                                  |                | OTHER DOCUMENTS  | S (Including    | g Author, Title   | e, Date, Pertine                      | nt Pages,     | etc.)             |                    |
| EXAMINER<br>INITIAL              | DOC.<br>REF.   |  | •               | C   | ITATION                               |               |                   |                    |
|                                  | AN             |  |                 |   |                                       |               |                   |                    |
|                                  | AO             |  |                 |   |                                       |               |                   |                    |
|                                  | AP             |  |                 |   |                                       |               |                   |                    |
|                                  | AQ             |  |                 |   |                                       |               |                   |                    |
| -                                | AR             |  |                 |   |                                       |               |                   |                    |
| EXAMINER                         |                | <u> </u>   |                 |   |                                       | DATE CO       | NSIDERED          |                    |
| EXAMINER: In                     | itial if refer | ence considered, whether or<br>de copy of this form with nex | not citation is | in conformance v  | rith MPEP 609. Dra                    | w line throug | h citation if not | in conformance     |
| 533583_1.DOC                     | .eu. inau<br>C | de copy of this form with nex                                | . williamedu    | on to Applicant.  |                                       | <u> </u>      |                   |                    |

|                              |               |                               |                 |  |                           |               |              |                   | Page 3 of 4        |
|------------------------------|---------------|-------------------------------|-----------------|--|---------------------------|---------------|--------------|-------------------|--------------------|
| FORM PTO-1449                |               |                               |                 | ATTY. DOCKET NO. APPLICATION NO. 1744.1380000 10/719,058 |                           |               |              |                   |                    |
|                              | FOUR          | TH SUPPLEMENTAL               |                 |  | T NAMED INVEN             | TOR           |              |                   |                    |
| INFOR                        | MATION        | DISCLOSURE STATEM             | <u>IENT</u>     | FILIN  | ory S. RAWLINS<br>IG DATE |               | ART          | UNIT              |                    |
|                              |               |                               |                 |  | November 24, 2003 2193    |               |              |                   |                    |
| EXAMINER                     | DOC.          | T                             |                 |  | DOCUMENTS                 |               | - <u>-</u> - | ı                 | <u> </u>           |
| INITIAL                      | REF.          | DOCUMENT NUMBER               | DATE            |  | ME<br>                    | -             | CLASS        | SUB-CLASS         | FILING DATE        |
|                              | AA74          | 6,591,310 B1                  | 07/2003         |  | hnson                     |               |              |                   |                    |
| <u>.</u>                     | AB74          | 6,963,626 B1                  | 11/2005         |  | aeffer et al.             |               |              | <u> </u>          |                    |
|                              | AC74          | 4,811,422                     | 03/1989         |  | ıhn<br>———————            |               |              |                   |                    |
|                              | AD74          | 5,825,257                     | 10/1998         | Kly  | Klymyshyn et al.          |               |              |                   |                    |
|                              | AE74          | 5,986,600                     | 11/1999         | Mo   | Ewan                      |               |              |                   |                    |
|                              | AF74          | 6,865,399 B2                  | 03/2005         | Fu   | jioka <i>et al</i> .      |               |              |                   |                    |
|                              | AG74          | 2006/0039449 A1               | 02/2006         | Fo   | ntana et al.              |               |              |                   |                    |
|                              | AH74          | 5,847,594                     | 12/1998         | Mi   | zuno                      |               |              |                   |                    |
|                              | AI74          | 2005/0185741 A1               | 08/2005         | Ra   | awlins et al.             |               |              |                   |                    |
|                              |               |                               | FOREIGN F       | PATEN  | T DOCUMENTS               | 3             |              | T                 | T                  |
| EXAMINER<br>INITIAL          | DOC.<br>REF.  | DOCUMENT NUMBER               | DATE            |  | COUNTRY                   |               | CLASS        | SUB-CLASS         | TRANSLATION<br>Yes |
|                              | AJ            |                               |                 |  |                           |               |              |                   | No                 |
|                              | AK            |                               |                 |  |                           |               | <u></u>      |                   | Yes<br>No          |
|                              | AL            |                               |                 |  |                           |               |              |                   | Yes<br>No          |
|                              | AM            |                               |                 |  |                           |               |              |                   | Yes<br>No          |
|                              |               | OTHER DOCUMENTS               | S (Including    | g Auth   | or, Title, Date,          | Pertinent     | Pages,       | etc.)             |                    |
| EXAMINER<br>INITIAL          | DOC.<br>REF.  |                               |                 |  | CITATION                  |               |              |                   |                    |
|                              | AN            |                               |                 |  |                           |               |              |                   |                    |
|                              | AO            |                               |                 |  |                           |               |              |                   |                    |
|                              | AP            |                               |                 |  |                           |               |              |                   |                    |
|                              | •             |                               |                 |  |                           |               |              |                   |                    |
| <u>-</u>                     | AQ            |                               |                 |  |                           |               |              |                   |                    |
|                              | AR            |                               |                 |  |                           |               |              |                   |                    |
| EXAMINER                     |               |                               | <del> </del>    |  |                           | D             | ATE CC       | NSIDERED          |                    |
| EXAMINER: Ini                | tial if refer | ence considered, whether or   | not citation is | in confe   | ormance with MPEP         | 609. Draw lir | ne throug    | h citation if not | in conformance     |
| and not conside 533583_1.DOC | red. Indu     | de copy of this form with nex | t communicati   | ion to Ap  | oplicant.                 |               |              |                   | <del></del>        |
|                              |               |                               |                 |  |                           |               |              |                   |                    |

|  |                                    |   |   |                                  |                  |                     | Page 4 of 4        |
|--|------------------------------------|---|---|----------------------------------|------------------|---------------------|--------------------|
| FORM PTO-1449  |                                    |   |   | ATTY, DOCKET NO.<br>1744.1380000 |                  | ICATION NO<br>9 058 |                    |
|  |                                    |   |   | FIRST NAMED INVENTOR             |                  |                     |                    |
| FOURTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT |                                    |   | Gregory S. RAWLINS FILING DATE ART UNIT |                                  |                  |                     |                    |
|  |                                    |   |   | November 24, 2003                | 2193             |                     |                    |
| EVAMINED   | 1000                               | Γ   | <u> </u>                                | TENT DOCUMENTS                   | <del></del>      |                     | T                  |
| INITIAL  | EXAMINER DOC. DOCUMENT NUMBER DATE |   | DATE                                    | NAME                             | CLASS            | SUB-CLASS           | FILING DATE        |
| -2   | AA75                               | 2005/0193049 A1   | 09/2005                                 | Rawlins et al.                   |                  |                     |                    |
|  | AB                                 |   |   |                                  |                  |                     |                    |
|  | AC                                 |   |   |                                  |                  |                     |                    |
|  | AD                                 |   | <u></u>                                 |                                  |                  |                     |                    |
|  | AE                                 |   |   |                                  |                  |                     |                    |
|  | AF                                 |   |   |                                  |                  |                     |                    |
|  | AG                                 |   |   |                                  |                  |                     |                    |
|  | AH                                 |   |   |                                  |                  |                     |                    |
|  | Al                                 |   |   |                                  |                  |                     |                    |
| EXAMINER   | DOC.                               | <u> </u>  |   | PATENT DOCUMENTS                 | 1                | T                   | T ==               |
| INITIAL  | REF.                               | DOCUMENT NUMBER   | DATE                                    | COUNTRY                          | CLASS            | SUB-CLASS           | TRANSLATION<br>Yes |
|  | AJ                                 |   |   |                                  |                  |                     | No<br>Yes          |
|  | AK                                 |   |   |                                  |                  |                     | No<br>Yes          |
|  | AL                                 |   |   |                                  |                  | _                   | No<br>Yes          |
|  | AM                                 |   |   |                                  |                  |                     | No                 |
| EXAMINER   | DOC.                               | OTHER DOCUMENTS   | S (Including                            | g Author, Title, Date, Per       | tinent Pages,    | etc.)               |                    |
| INITIAL  | REF.                               |   |   | CITATION                         |                  |                     |                    |
|  | AN                                 |   |   |                                  |                  |                     |                    |
|  | АО                                 |   |   |                                  |                  |                     |                    |
|  | AP                                 |   |   |                                  |                  |                     |                    |
|  | AQ                                 |   |   |                                  |                  |                     |                    |
|  | AR                                 |   |   |                                  |                  |                     |                    |
| EXAMINER   |                                    |   |   |                                  |                  | NSIDERED            |                    |
| EXAMINER: In   | tial if refer                      | rence considered, whether or<br>de copy of this form with nex | r not citation is                       | in conformance with MPEP 609.    | Draw line throug | h citation if not   | in conformance     |
| 533583_1.DO  |                                    |   |   |                                  |                  |                     |                    |